

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Original) A group I-VII semiconductor single crystal thin film formed on a substrate made from ionic single crystals,

the group I-VII semiconductor single crystal thin film being formed on a buffer layer while an electron beam is irradiated on the group I-VII semiconductor single crystal thin film, the buffer layer being for alleviating distortion caused due to a difference in lattice constant between the substrate and the group I-VII semiconductor single crystal thin film.

2. (Original) A group I-VII semiconductor single crystal thin film comprising:

a layer formed while irradiating an electron beam thereon; and
a layer formed while not irradiating the electron beam thereon.

3. (Original) The group I-VII semiconductor single crystal thin film as set forth in Claim 1, comprising:

a layer formed while irradiating an electron beam thereon; and
a layer formed while not irradiating the electron beam thereon.

4. (Currently Amended) The group I-VII semiconductor single crystal thin film as set forth in ~~any one of Claims 1 to 3~~ claim 1, having a film thickness that allows an internal electric field to be resonance-increased.

5. (Currently Amended) The group I-VII semiconductor single crystal thin film as set forth in ~~any one of Claims 1 to 4~~ claim 1, wherein: a region formed while irradiating an electron beam thereon and a region formed while not irradiating the electron beam thereon are located different places when viewing the substrate in a direction vertical to its surface.

6. (Currently Amended) The group I-VII semiconductor single crystal thin film as set forth in ~~any one of Claims 1 to 5~~ claim 1 being a CuCl thin film.

7. (Currently Amended) The group I-VII semiconductor single crystal thin film as set forth in ~~any one of Claims 1 to 5~~ claim 1 being a metal halide semiconductor thin film.

8. (Original) A process for producing a group I-VII semiconductor single crystal thin film on a substrate made from ionic single crystals, comprising:

forming a buffer layer on the substrate, the buffer layer being for alleviating distortion caused due to a difference in lattice constant between the substrate and the group I-VII semiconductor single crystal thin film; and

forming the group I-VII semiconductor single crystal thin film while irradiating an electron beam on the buffer layer.

9. (Original) A process for producing a group I-VII semiconductor single crystal thin film, comprising:

forming a layer of the group I-VII semiconductor single crystal thin film while irradiating an electron beam thereon; and

forming the rest of the group I-VII semiconductor single crystal thin film while not irradiating the electron beam thereon.

10. (Original) The process as set forth in Claim 8, comprising:

forming a layer of the group I-VII semiconductor single crystal thin film while irradiating an electron beam thereon; and

forming the rest of the group I-VII semiconductor single crystal thin film while not irradiating the electron beam thereon.

11. (Currently Amended) The process as set forth in Claim 9 or 10, wherein:

the layer formed while irradiating the electron beam thereon and the layer formed while not irradiating the electron beam thereon have film thicknesses that are decided in consideration of a film thickness of the group I-VII semiconductor single crystal thin film.

12. (Currently Amended) The process as set forth in ~~any one of~~ claim 8, wherein:

the film thickness of the group I-VII semiconductor single crystal thin film is a film thickness with which an internal electric field is resonance-increased.

13. (Currently Amended) The process as set forth in ~~any one of~~ claim 8, wherein:

an acceleration voltage HV of the electron beam is $0(\text{kV}) < \text{HV} \leq 30(\text{kV})$.

14. (Currently Amended) The process as set forth in ~~any one of~~ claim 8, wherein:

a filament current FI of the electron beam is $0 (\text{A}) < \text{FI} \leq 5 (\text{A})$.

15. (Currently Amended) The process as set forth in ~~any one of~~
~~Claims 8 to 14~~ claim 8, wherein:

an irradiation current H_I of the electron beam is $0(\mu\text{A}) < H_I \leq 150(\mu\text{A})$.